PIONEERS IN RHEUMATOLOGY

Edward Calvin Kendall

VR Joshi*, VB Poojary**

Edward Kendall was born on 8th March 1886 in South Norwalk, Connecticut, USA. Kendall obtained the degrees of Bachelor of Science in 1908, Master of Science in 1909, and Ph. D. in Chemistry in 1910. From 1910-1911 he worked as a research chemist with Parke Davis where his main task was to isolate thyroid hormones.[1] He continued to work on thyroid harmones till 1914 while working at St. Luke's Hospital, New York. In 1914 he joined Mayo Clinic Medical School as head of the Biochemistry Section.[1] In 1915 he was appointed Director of Biochemistry division and later became Professor of Physiological Chemistry at the medical school. Mayo clinic graduate school was affiliated to the University of Minnesota. After his retirement in 1951 he was a visiting Professor in the Department of Biochemistry at Princeton University. He remained affiliated with Princeton till the end.[1]

Contributions

- In 1913, Kendall isolated the thyroid factor (thyroxine). He used a bioassay to measure urinary nitrogen changes of dogs[2]. After joining Mayo clinic, he described isolation and crystallization of thyroxine. For this he used 6500 pounds of hog thyroid glands ! He however failed to determine the structure of thyroxine. (He tried it for 10 years)[2]
- Isolated and established the chemical nature of glutathione
- Studied oxidation systems in animals
- Isolated adrenal hormones. Kendall had started the study of adrenal glands in 1930. This kept him occupied for the next 20 years. The steroids isolated from adrenal gland were initially named A, B, E, and F. Compound A was 11-dehydrocorticosterone, compound B, corticosterone, compound E 17-hydroxy-11-dehydrocorticosterone (cortisone), and compound F, 17-hydroxycorticosterone (cortisol or hydrocortisone).[2]

During World War II there was a big boost (in USA) to synthesize adrenal steroid hormones due to the rumour that Germany was making adrenal gland extract to improve the performance of its Luftwaffe pilots. After the war the enthusiasm to synthesize adrenal steroid hormones waned. However, Kendall's group continued the effort in association with Merck Co. He had the conviction that adrenal hormones will have therapeutic value. By 1948 large scale synthesis of cortisone was possible. Prof. Hench convinced Kendall to do a small study of cortisone on patients with rheumatoid arthritis. The rest is history.[2]

Awards

Apart from the Nobel prize (1950), Kendall was the recipient of many awards, some jointly with Hench (Lasker Award, Passano Award, Page One Award) and Honorary Doctorates of University of Cincinati, Western Reserve University, Williams College, Yale University, Columbia University, National University of Ireland, and Gustavu's Adolphus College.[3]

Kendall died on 4th May 1972, in Princeton, New Jersey. Elementary school in Norwalk is named after him.[1]

References

1. "Edward C. Kendall – Biographical". Nobelprize.org. Nobel Media A B 2013 Web 25 July 2013. http://www.nobelprize.org/nobel_prizes/medicine/laureates/1950/kendall-bio.html
2. Simoni RD, Hill RL, Vaughan M. The isolation of thyroxine and cortisone : the work of Edward C. Kendall. *J Biol Chem* 2002;277:21-22
3. http://en.wikipedia.org/wiki/Edward_Calvin_Kendall.

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